TECHNICAL NOTES

LAKE STATES FOREST EXPERIMENT STATION
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Reduction of Woods Waste From Periodic Cuts--an Index of Stand Improvement

Present logging practice in old-growth northern hardwood stands leaves large volumes of wood in the forest as waste 1/ except in a few localities where there is a demand for pulpwood or for wood to be used in the manufacture of chemical products.

The records of 12 timber sales on the Upper Peninsula Experimental Forest at Dukes, Michigan, were recently studied to determine the effect of good management practice on the amount of waste material developing in periodic cuts (table 1). Comparable standards had been maintained for cutting of cull trees and utilization of tops and cull logs. Five of the sales were initial cuts in virgin stands, six were second-cycle cuts, and one was a third-cycle cut. In all of the sales the waste material was measured and utilized.

In the first cut only overmature and the most defective trees were marked, resulting in a greater volume of cull logs than of merchantable logs. This cutting left considerable cull in merchantable trees in the residual stand. By the third cut, at the end of a 20-year period, most of the cull had been removed. The residual stand following the third cut consisted of thrifty, well-formed trees having only minor defects.

The ratio of topwood to sawlog volume removed was also reduced over the periodic cuts but in smaller proportion than that of cull logs (table 2). The amount of topwood remains fairly constant for trees of a given size.

Future cuts in these managed stands can be expected to result in continued reduction and eventually the virtual elimination of the cull logs as the major source of woods waste. The yield of topwood, however, should remain fairly constant at the present level.

1/ Woods waste is here defined as:

Cull logs--usually unsound sawlogs at least 8 inches in diameter inside bark and from 7 to 9 feet long. Locally sold as chemical bolts for distillation material.

Topwood---wood from tops between 3 and 8 inches in diameter and of uniform lengths between 32 and 50 inches. Locally sold as chemical wood for distillation material.

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(Over)

Table 1.--Distribution of total cut by products

Periodic cut	Volume cut per acre		Components of total cut			
	Total[1/]	Net board feet	Merchantable sawlogs	Woods waste		
				Cull logs	Topwood	Total
	Cords	M b.m.	Percent	Percent	Percent	Percent
First cut	9.93	1.5	30.4	53.1	16.5	69.6
Second cut	14.93	3.3	44.6	37.6	17.8	55.4
Third cut	8.60	2.7	63.4	18.4	18.2	36.6

1/ Includes net M b.m. converted to cords using 2.0 cords per M b.m.

Table 2.--Ratio of woods waste in periodic cuts

Periodic cut	Net volume cut per acre	Woods waste per M b.m. cut		
		Cull logs	Topwood	Total
	M b.m.	Cords	Cords	Cords
First cut	1.5	3.5	1.1	4.6
Second cut	3.3	1.7	.8	2.5
Third cut	2.7	.6	.6	1.2